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Spaceport News

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Explore. Discover. Understand.

Discovery launch window now opens May 22

Processing continues on Atlantis

After a review by senior management, Space Shuttle Discovery's new target launch date is May 22 in the launch window that runs through June 3. This will allow additional time to complete the required engineering analysis, validation and verification testing of the Shuttle for a safe Return to Flight on mission STS-114.

Work continues at Launch Pad 39B for Discovery's launch to the International Space Station (ISS). The payload bay doors were opened April 19 and the Remote Manipulator System, or Shuttle arm, and the Orbiter Boom Sensor System clearance checks were completed. Flight readiness tests have been successfully performed on all three Space Shuttle Main Engines.

The Multi-Purpose Logistics Module Raffaello was installed this week, with transfer to the pad scheduled to occur shortly afterward.

RAFAELLO IS loaded into the Payload Transportation Canister at the Space Station Processing Facility.

Technicians also finalized work to prepare for loading the hypergolic propellants for flight. This process includes loading the propellants, monomethyl hydrazine and nitrogen tetroxide, into the Orbiter Maneuvering System and the Forward Reaction Control System.

In addition, two of the payloads that will travel to the ISS were installed into the Payload Transportation Canister in preparation for their move to the launch pad. These included the External Stowage Platform-2

(See WINDOW, Page 2)

Michael Griffin takes helm as NASA administrator

Michael D. Griffin reported to work April 14 as NASA's 11th administrator, becoming the Agency's new leader on the day the Expedition 11 crew launched to the International Space Station.

"I have great confidence in the team that will carry out our nation's exciting, outward-focused, destination-oriented program," said Griffin. "In the coming days, I'll be spending a good deal of my time reviewing our progress toward returning the Space Shuttle safely to flight.

"I will also be reviewing the activities of our mission directorates and our various supporting functions," he said. "I share with the Agency a great sense of privilege that we have been given the wonderful opportunity to extend humanity's reach throughout the Solar System."

During his confirmation hearing before the U.S. Senate, the administrator stated his priorities, consistent with the Vision for Space Exploration:

• Fly the Space Shuttle as safely as possible until its retirement, no later than 2010;

• Bring a new Crew Exploration Vehicle into service as soon as possible after the Space Shuttle is retired;

• Develop a balanced overall program of science, exploration and aeronautics at NASA, consistent with the redirection of the human space flight program to focus on exploration;

• Complete the International Space Station in a manner consistent with our international partner commitments and the needs of human exploration;

• Encourage the pursuit of appropriate partnerships with the emerging commercial space sector; and

• Establish a lunar return program having the maximum possible utility for later missions to Mars and other destinations.

President George W. Bush nominated Griffin as NASA administrator in March, while Griffin was serving as head of the Space Department at Johns Hopkins

(See GRIFFIN, Page 2)

NASA ADMINISTRATOR Michael Griffin (right) listens as Kennedy Space Center Director Jim Kennedy briefs him during a Space Shuttle Program meeting at KSC. Griffin said his first priority as administrator is Return to Flight.

The Kennedy Update

Jim Kennedy
Center Director

Hello, everyone! While I know I'm nine days early, the first thing I'd like to do is wish all the ladies out there a happy Mother's Day!

My Mom is one of the most important people in my life and no matter how busy I am, I call her once a day. I know for many of you it isn't easy holding a job while serving as the matriarch of the household, but you do it with style and grace.

So to all the Moms at KSC, I hope May 8 is your most special day of the year.

Just think, two weeks after Mother's Day is lining up to be a special day for us all. I'm sure you heard that May 22 is now the new opening of the launch window for Space Shuttle Discovery.

While the vehicle is in great shape, the team just needed some more time to complete critical engineering analysis and required paperwork for flight. While I can't say for sure the launch will be May 22, I'm extremely confident Discovery will fly prior to the end of the window, which is June 3.

My congratulations to the entire team for their work so far.

One of the final preflight activities takes place beginning Sunday through Wednesday. Eileen Collins will arrive with the six other STS-114 crewmembers on Sunday to prepare for next week's Terminal Countdown Demonstration Test, or in layman's terms, the launch full dress rehearsal.

The crew will actually suit up and head out to the pad and strap in the vehicle. We'll take the countdown to zero and do everything but actually launch.

This brings up one point I'd like to make. There are many important activities that take place at our Center on a daily basis. But for the month of May, returning the Shuttle to safe flight is the top priority of the Center.

> "For the month of May, returning the Shuttle to safe flight is the top priority of the Center."

We have more than 3,500 dignitaries; the world's media and the eyes of the world will be focused on KSC for launch. So you may see some previously scheduled activities altered or even canceled during the month, because it will take the Center's full-dedicated resources to launch Discovery successfully. I appreciate your cooperation and understanding during this critical time.

May isn't just for Shuttle launches when it comes to heading into space, as the NOAA-N satellite is slated for launch at Vandenberg Air Force Base in California on May 11.

I know our entire Launch Services Program team has worked hard to make the mission a success and I have no doubt it will be another storied chapter in their legacy of achievements. I wish everyone the best of luck.

That is it for now. May 2005 will go down as one of the most important months in NASA's history with the launch of Discovery. Aren't we lucky we'll be able to say we were here to be a part of it! Again, happy Mother's Day, Mom, and to all of the mothers of KSC!

WINDOW . . .

(Continued from Page 1)

(ESP-2) and the Lightweight Multi-Purpose Experiment Support Structure Carrier (LMC).

The ESP-2 will carry replacement parts to the Station and will be deployed and attached to the Station's airlock as a permanent spare-parts facility. The LMC will carry a replacement Control Moment Gyroscope and a tile repair sample test kit.

Technicians continue processing Atlantis in Orbiter Processing Facility bay 1 for its mission, designated STS-121, to the ISS.

The STS-121 crew recently arrived at the Center for a hands-on look at the orbiter and equipment. Atlantis has a launch window of July 12 to 31.

IN THE Orbiter Processing Facility, the STS-121 crew receives a briefing and up-close look at the Space Shuttle Atlantis. They include, from left, Mission Specialists Michael Fossum, Piers Sellers, and Lisa Nowak; Commander Steven Lindsey; Pilot Mark Kelly; and Mission Specialist Stephanie Wilson.

GRIFFIN . . .

(Continued from Page 1)

ADMINISTRATOR MIKE Griffin at NASA Headquarters in Washington.

University's Applied Physics Laboratory in Baltimore.

Griffin was president and chief operating officer of In-Q-Tel, Inc. before joining Johns Hopkins in April 2004. He also served in several positions within Orbital Sciences Corporation in Dulles, Va., including chief executive officer of Magellan Systems, Inc.

Earlier in his career, Griffin served as chief engineer at NASA and as deputy for technology at the Strategic Defense Initiative Organization. He has served as an adjunct professor at the University of Maryland, Johns Hopkins University and George Washington University.

He taught courses in spacecraft design, applied mathematics, guidance and navigation, compressible flow, computational fluid dynamics, spacecraft attitude control, astrodynamics and introductory aerospace engineering.

He is the lead author of more than two dozen technical papers, as well as the textbook, "Space Vehicle Design."

Johnson helps prepare the Space Shuttle's powerhouse

By Anna Heiney
Staff Writer

With the Space Shuttle's Return to Flight approaching, employees in one team at Kennedy Space Center are looking forward to seeing three of their babies - the Space Shuttle Main Engines (SSMEs) - at work for the first time in more than two years.

The SSME program is managed by NASA's Marshall Space Flight Center in Alabama, and the Agency's Stennis Space Center in Mississippi is responsible for test-firing each engine. But at Kennedy, the engines are nurtured by a dedicated team whose members assemble, inspect and install the engines for space flight.

"Our role is to make sure the hardware is right when it's assembled, that it contains no defects and passes all retesting after processing is complete," says Susan Johnson, a quality assurance and systems safety manager for the SSME program. A 21-year veteran of Rocketdyne Propulsion and Power, Johnson also helped in preparing for the first Return to Flight in 1988.

SUSAN JOHNSON is a quality assurance and systems safety manager for the Space Shuttle Main Engine program.

Inside Kennedy's 35,000-square-foot Space Shuttle Main Engine Processing Facility, up to six engines can be housed for processing at any given time. In addition to final Return to Flight preparations, the team is working on three engines for mission STS-121 and three spare engines.

Every day in the engine shop, "We take our engines through the paces when they're not installed in the orbiter," Johnson explains. This includes checking all systems, ensuring there are no leaks in the engines and verifying the software loaded into each engine's controller.

Each engine is made up of 50,000 parts. In the past, the engines were assembled in Canoga Park, Calif. After each flight, the Kennedy team would inspect the engines and prepare them for their next mission. However, Kennedy took over the assembly tasks in 2002, and in 2004 completed the first engine built entirely at the Center. That engine is slated to fly on STS-117.

"It was a huge milestone," Johnson says. "We started in April and finished in October, and hopefully we'll get to fly that engine pretty soon."

When launch day arrives, Johnson and the rest of the SSME team will hurry outside, eager to see their handiwork in action. They'll watch for specific milestones, including the start of the main engines.

Rook believes in team's ability to handle challenges

By Jennifer Wolfinger
Staff Writer

Technical operations employee Lee Rook had ulterior motives when she joined the space program.

"I wanted to do something that put me inside the orbiter and this worked," said the United Space Alliance employee about her career aspirations. "To know that I had such a large part in getting Discovery back flying again has, and will continue to, bring tears to my eyes."

Her dreams were fulfilled as she donned a headset while sitting in Discovery's crew module as it powered up after a very long Orbiter Maintenance Down Period.

She leads her co-workers during Discovery missions, and relays wire-repair and modification directives to employees so Orbiter Processing Facility Bay 3 efforts stay on schedule.

Rook considers Return to Flight work a priority, but she still attends to the other orbiters, and supports enhancing and restructuring the in-house Orbiter Maintenance Instructions process.

So the work force always has a robust pool of experts, she mentors new engineers and advanced system technicians while addressing work assignments considered urgent.

Rook and her husband, Robert, are parents of Beau, 23, Donny, 20, and Morgan, 19. She also considers Discovery to be one of her children, but she welcomes the upcoming empty nest feeling that will follow launch.

"I will be focused on those lit boosters and engines until I know Discovery's safely up where she was meant to be," she said.

LEE ROOK, a NASA technical operations employee, thinks of the Space Shuttle Discovery (shown at Launch Pad 39B) as a family member.

According to Rook, the Return to Flight process highlights Kennedy's tremendous team environment and ability to conquer challenges.

"One of the most amazing things I witnessed during this flow was the sense of ownership and pride everyone from logistics to quality folks, to technicians, to calibration had in working through the many hurdles we faced," she said.

Employees enjoy exciting tours, speakers durin

THE CENTER'S work force receives information on a variety of topics relating to the environment during Environmental and Energy Awareness Week. Exhibits were displayed in front of the Operations and Checkout Building (pictured) April 20 and the VAB April 21.

DR. ROSS McCluney EEAW kickoff breakfa changes can slow thi

By Jennifer Wolfinger
Staff Writer

Employees may remember the first time they learned about recycling to protect the environment, probably while in school many years ago.

This year's recent Environmental and Energy Awareness Week (EEAW) focused on the progress and challenges since those earlier days, specifically since the initial Earth Day celebration in 1970.

"Because of the location of KSC, we have to be especially vigilant in our care of the environment," said Kennedy Space Center Deputy Director Woodrow Whitlow.

"This week was a great opportunity to re-emphasize our commitment to environmental leadership, and on a personal note, I was pleased to be able to drive the hydrogen fuel cell-powered vehicle."

The three-day event began April 20 with an inaugural breakfast at the Space Station Processing Facility's cafeteria. Ivette Rivera lifted 170 spirits by singing the national anthem. Mario Busacca, the Environmental Program's lead for planning and special projects, served as master of ceremonies.

He welcomed Spaceport Services Director Scott Kerr, who mentioned all of KSC's related milestones, such as the new recycling initiative and the availability of ethanol gas.

The first guest speaker was Laurilee Thompson, founder of the Space Coast Birding and Wildlife Festival, who discussed ways nature enhances our communities and economy. "A healthy environment doesn't cost, it pays," she said.

Dr. Ross McCluney, principal research scientist for the Florida Solar Energy Center, then explained how the world is losing resources, and education and radical changes can slow this harmful trend.

After hearing the experts, many people took up to six tours focused on aquatics, scrub jays and manatees, the Merritt Island National Wildlife Refuge Visitors Center, the Space Life Sciences Laboratory's plant chambers and a remediation site.

While mingling with more than 35 exhibitors, employees learned about everything from endangered species and land conservation to bat houses and the Indian River.

Additionally, some eco-friendly members of the transportation industry showcased the latest alternative-fuel vehicles. The varieties included electric low speed, compressed natural gas, hybrids and more. Honda brought its FCX hydrogen fuel cell vehicle, and an "e-ride" vehicle that looked like a safari jeep.

Classic vehicles modeled ways fuel technology has evolved. On April 22, many employees hopped in the passenger side of these vehicles for a spin at the KSC Visitor Complex.

"Earth Day celebrated 35 years on April 22. EEAW brings awareness and a recommitment on everyone's part to be better stewards of the environment," said EEAW co-chairwoman Barbara Naylor. "It's like what we hear out here all the time: cultural change, it all starts within ourselves."

HONDA SHOWCASES its FCX hydrogen fuel cell vehicle in front of the Vehicle Assembly Building during EEAW.

ng Environmental and Energy Awareness Week

y, principal research scientist for the Florida Solar Energy Center, speaks at the ast about how the world is losing resources. He said education and radical is harmful trend.

MEMBERS OF the work force receive promotional items and answer various questionaires inside the EEAW tent located in front of the VAB.

JENNIFER YATES (center) and Beth Homa at the NASA Remediation Projects display explain the remediation actions taken at the Wilson Corners site during EEAW. NASA complies with the Resource Conservation and Recovery Act, which protects health and the environment, and conserves valuable material and energy resources.

THE EEAW Kickoff Breakfast April 20 at the Space Station Processing Facility Cafeteria included a continental breakfast and two guest speakers. The speakers included Dr. Ross McCluney from the Florida Solar Energy Center and Laurilee Thomspon, founder of the Space Coast Birding and Wildlife Festival.

NASA prepares for NOAA-N weather satellite launch

With its eye on the Space Shuttle Program's Return to Flight, NASA is also preparing to launch the NOAA-N weather satellite May 11 aboard a Boeing Delta II from NASA's Space Launch Complex 2 at Vandenberg Air Force Base, Calif.

NASA has developed the spacecraft for the National Oceanic and Atmospheric Administration (NOAA) and will turn it over to them after on-orbit checkout. The satellite is built by Lockheed Martin.

The launch of NOAA-N inaugurates a new era of international cooperation and introduces a new model for future polar-orbiting environmental satellite systems.

The spacecraft will continue to provide a platform supporting environmental monitoring instruments for imaging and measuring the Earth's atmosphere, its surface and cloud cover.

These descendents of the Advanced TIROS spacecraft, named after the prototype satellite TIROS (Television Infrared Observation Satellites), have been flying since 1978. The system consists of a pair of satellites, ensuring that every part of the Earth is regularly observed at least twice every 12 hours.

The satellites provide global coverage of numerous atmospheric and surface parameters, furnishing measurements for input to global atmospheric and surface forecast models.

As users around the world have learned how to exploit this satellite data, the consistency and accuracy of predictions of potentially catastrophic environmental events have improved significantly. Better prediction of these events allows emergency managers to activate plans to reduce their effect and protect lives and property.

In addition, this continuous source of satellite data has provided the foundation for extensive climate and research programs. In many developing countries and over much of the oceans, satellite data is the only source of quantitative information on the state of the atmosphere and the Earth's surface, and is an invaluable source of real-time information about severe weather.

The satellites also support an international search-and-rescue program. Since 1982, this program is credited with saving more than 17,000 lives by detecting and locating emergency beacons from ships, aircraft and people in distress.

THIS BOEING Delta II rocket stands poised to launch the NOAA-N weather satellite at Vandenberg Air Force Base, Calif.

Management of this NOAA-N launch is the responsibility of the Kennedy Space Center Launch Services Program. The last in this series of polar-orbiting weather satellites will be launched late next year.

One-pound microscope will study bone loss in space

By Charlie Plain
Staff Writer

As scientists' understanding of the universe rapidly grows, the tools of their trade are shrinking ever smaller. Take for example Florida Space Research Institute's powerful atomic force microscope located in the Space Life Sciences Lab.

THIS ATOMIC force microscope will study astronaut bone loss.

Despite its modest size, the miniature microscope rivals the power of the largest electron microscopes. "An electron microscope weighs as much as an elephant and this one weighs only a pound - and the resolution is just as good, if not better," exclaimed Dr. Shaohua Xu, a biochemical research scientist and chief operator of the microscope.

Electron and atomic force microscopes are incredibly strong and can see tiny objects such as atoms. Xu is using the Florida lab's microscope to investigate a significant medical condition that affects astronauts.

"One of our research projects is studying bone loss associated with space travel," said Xu.

Astronauts who spend weeks and months in the weightlessness of space often develop weakened bones. Xu is taking a close look at bone samples to figure out what causes chemicals like calcium carbonate to leach out of their bones and leave them brittle. The answer to this question also has implications on Earth as doctors try to combat severe - and all too common - bone disorders like osteoporosis.

DR. SHAOHUA Xu (left), a biochemical research scientist at the Space Life Sciences Lab and Dr. Sam Durrance, executive director of the Florida Space Research Institute, discuss uses for the one-pound atomic force microscope.

Xu's boss, astronaut Dr. Sam Durrance, believes a key to extended missions in space - an important step in the nation's Vision for Space Exploration - is understanding why bones deteriorate. "We're talking about long-term space exploration and in order to do that…you have to address bone loss," said Durrance.

Amazingly, this extraordinarily powerful microscope fits in the palm of Xu's hand. "You can put it in your pocket," quipped Xu. "It's so small that you could take it to the Moon or Mars."

That's exactly what Durrance is thinking. "We're doing this to pursue profound questions about whether we can live on other worlds."

USA's Beagley garners 2005 Debus Award at banquet

By Jeff Stuckey
Editor

As winner of the 2005 Dr. Kurt H. Debus Award, Richard Beagley of United Space Alliance is touched by what the honor represents.

"I never met Dr. Debus, but he has always been a presence on the space program and his leadership qualities had an effect on all of us in the performance of our jobs," Beagley said. "I look around and see my friends and colleagues who I've worked with over the years, and this means more to me than you could ever believe."

The National Space Club Florida Committee presented Beagley with the honor April 16 at the 16th annual Debus Award Banquet at the Kurt H. Debus Center. The award, named after Kennedy Space Center's first director, is given to select people involved with space launch or payload activities, ground support systems, educational activities or aerospace research.

"This is a bit overwhelming, to say the least," Beagley said after receiving the award. "It's unbelievable to me that I started some 40 years ago at Launch Complex 15 as a very young guy just out of the Navy and trying to establish a career in the aerospace business. Most of my memorable days, besides Shuttle, are with the Apollo Program. Roy (Tharpe) and I worked together for a long time and shared a lot of memories."

2005 DEBUS Award winner Richard Beagley of United Space Alliance addresses guests at this year's banquet.

Beagley is aiding NASA's Return to Flight in more ways than one. In addition to his responsibilities as director of Manufacturing, Overhaul, Repair and Integrated Logistics for the Space Shuttle Program, he serves as vice president of Safety, Quality and Mission Assurance for United Space Alliance (USA).

Beagley attributes much of his success to his wife and encouragement from USA. "I want to thank you, Gail, for all you have done to support me," he said. "And I want to thank Mike McCulley, president and CEO of USA, and his wife, Jane, who are here tonight to support me. Mike has been supportive of all my activities in the community and with the National Space Club."

Following Beagley's acceptance speech, guest speaker Jim Kennedy, KSC director, shared the challenges he and Beagley faced as young engineers with contractor USBI at the Center.

"The word 'transformation' is used a lot these days, and he transformed the Safety and Mission Assurance part of the Solid Rocket Booster elements we use," Kennedy said. "USA is proud of you, and when I say that I mean United Space Alliance and the United States of America. You are a tribute to what you do."

For information about the club and its upcoming events, visit **http://www.nscfl.com**.

RICHARD BEAGLEY (center with trophy), this year's Debus Award honoree from United Space Alliance, joins past recipients attending this year's banquet, including, from left, Adrian Laffitte, director of Atlas launch operations at Cape Canaveral Air Force Station for Lockheed Martin; Lee Solid, retired vice president and general manager of Rockwell Florida Operations; Dr. Maxwell King, retired president of Brevard Community College; Ernie Briel, president of the BRPH architecturing and engineering company; John "Tip" Talone, NASA's director of Space Station processing at KSC; retired U.S. Air Force Lt. Gen. Forrest McCartney, a former director of KSC; and Bob Sieck, retired director of Space Shuttle launch processing and operations at KSC.

Boeing team joins list of VPP STAR worksites

The U.S. Occupational Safety and Health Administration (OSHA) recently awarded Boeing's Payload Services team at Kennedy Space Center the prestigious Voluntary Protection Program (VPP) STAR site flag. The STAR designation is the highest of the VPP rankings, recognizing safety and health program excellence, and is a first for The Boeing Company.

The Boeing Payload Services team began voluntarily working with OSHA to achieve VPP status in September 2002. Following the submission of a summary report to OSHA in February 2004, an on-site audit verified all recommended changes had been achieved. Receiving the VPP flag at a recent ceremony (above from left) were: Teresa Harrison, deputy regional administrator for OSHA; Jim Kennedy, KSC director; Laurie McManus, CAPPS VPP coordinator; Larry Ellis, deputy program manager for CAPPS; Bruce Melnick, vice president of Boeing's Florida Operations; and Dennis Dailey, chief of safety, health and environmental affairs for Boeing's Florida Operations.

New digital X-ray machine to benefit work force

By Linda Herridge
Staff Writer

Kennedy Space Center's Occupational Health Facility (OHF) in the Industrial area recently received a new, state-of-the-art digital radiography machine that provides X-ray images on a computer screen within five seconds. The images can be copied to CDs and given to workers to take to their primary care physicians.

"It's like a giant digital camera," said Donna Hartley, a radiology technologist with Comprehensive Health Services (CHS).

A new software program, Swiss Vision, is used to view X-ray images on the computer screen. An OHF doctor reviews the images, which are then sent to Parrish Medical Center in Titusville, where a radiologist officially reads them.

According to Dr. Charles Smallwood, CHS medical director, the new machine uses significantly less radiation to take images and because of the digital format, the picture resolution is much clearer.

"We can take the images and manipulate them on the computer to adjust for contrast in order to better see any areas of concern," Smallwood said. "The enhanced computer-adjustment factors will continue to greatly reduce the 're-take' rates and, along with the rapid interpretation turn-around time, we'll be able to provide improved patient care."

Hartley said the OHF performs about 50 required physical exams per day. These include new employees and many of the nearly 24,000 Spaceport employees who are required to have an annual physical exam and chest X-ray.

The new digital radiography unit cost approximately $310,000 and was manufactured by Swissray Medical AG in Switzerland. Space Gateway Support/JBOSC Facilities Services provided facility upgrades at a cost of nearly $65,000 to accommodate the new machine.

"The improved health care and customer satisfaction is priceless," said Smallwood.

According to Hartley, the new machine will also reduce storage space since the images are stored digitally and then transferred to DVDs.

A Swissray local representative trained the three radiology technicians in the OHF to use the new equipment. The technicians can adjust the machine using a remote-control device.

CINDY HAMMERSCHMIDT (above) of Comprehensive Health Services (CHS) demonstrates the new digital radiography machine at the Occupational Health Facility. Below, Donna Hartley of CHS monitors output from the radiography machine on a computer.

Satellites to aid safety review at Center

THE FOUR satellite dishes below the mound located behind the TV Auditorium are installed to support the External Tank Observation Camera aboard the Space Shuttle. Some of the images will be analyzed at Kennedy.

John F. Kennedy Space Center
Spaceport News

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